



Attorney's Docket No. 9349-290

10/25/03
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Wallace
Serial No.: 09/801,998
Filed: March 8, 2001
For: *Cured Urea Formaldehyde Resin-Bound Glass Fiber Mats*

Confirmation No.: 5867
Art Unit: 1731
Examiner: Chin, Peter

Date: November 5, 2003

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 1.192)**

1. Transmitted herewith, in triplicate, is the APPEAL BRIEF in this application, with respect to the Notice of Appeal filed on September 5, 2003.
2. This application is filed on behalf of
 a small entity
A verified statement is attached; was already filed.
3. Pursuant to 37 C.F.R. § 1.17(c), the fee for filing the Appeal Brief is:
 small entity \$165.00
 other than small entity \$330.00

Appeal Brief fee due \$330.00

Any additional fee or refund may be charged to Deposit Account 50-0220.

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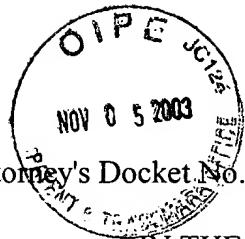
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Sloan Smith



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APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" filed on September 5, 2003 and is filed in triplicate pursuant to 37 C.F.R. § 1.192.

REAL PARTY IN INTEREST

The real party in interest is Dow Reichhold Specialty Latex LLC, a limited liability company organized and existing under the laws of the State of Delaware, having a principal place of business at 2400 Ellis Road, Suite 100, Durham, North Carolina, the Assignee of this application. The application was transferred and assigned to Dow Reichhold Specialty Latex LLC on January 1, 2002 by the original assignee, The Dow Chemical Company. The assignments will be recorded subsequent to the filing of this Appeal Brief.

RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals and/or interferences that will directly or indirectly affect this Appeal or have any bearing on the Board's decision in this Appeal.

STATUS OF CLAIMS

Claims 14-20 are pending in this case.

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Claims 14-17 are allowed.

Claims 18-19 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Drews et al. (U.S. Patent No. 5,334,648) or, in the alternative, under 35 U.S.C. § 103(a) as being obvious in light of Drews et. al.

Claim 20 stands rejected under 35 U.S.C. § 103(a) as being obvious in light of Drews et al. (U.S. Patent No. 5,334,648).

STATUS OF AMENDMENTS

A First Office Action (“First Action”) rejecting Claims 18-20 under 35 U.S.C. §§ 102(b) and 103(a) was mailed on January 3, 2003. No claim amendments were made in response to the First Action. A Final Office Action (“Final Action”) was mailed on June 19, 2003, which reiterated the rejections of Claims 18-20. A Notice of Appeal in response to the Final Action was filed on September 5, 2003. No Claims have been amended in the application.

SUMMARY OF THE INVENTION

The invention relates to glass fiber mats and a process for the production of such mats. *See, Specification* at p. 1, lines 4-5. More particularly, the “invention relates to a method for improving the balance of tensile strength and tear strength of cured, latex-modified urea formaldehyde (UF) resin-bound glass fiber nonwoven mats...and to the binder composition used in the method.” *See, Id.* at p. 2, lines 22-29. Claims 18-20, which are at issue in this Appeal, recite a binder composition according to the invention.

According to embodiments of the present invention, the binder composition “comprises a UF resin, an emulsion polymer, and a molecule containing a phosphate moiety.” *See, Specification* at p. 3, lines 33-35. The molecule containing a phosphate moiety can be incorporated into the binder in several ways, including the following:

it can be in the aqueous emulsion polymer in the form of a surfactant that is in the reaction mixture when the emulsion polymer is prepared, or it can be in the form of a reactive surfactant that is in the reaction mixture when the emulsion polymer is prepared,

or it can be in the form of a perphosphate initiator used when the emulsion polymer is prepared, or it can be added as a surfactant during the formulation of the UF resin, the emulsion polymer or the binder. *See, Specification* at p. 4, lines 3-12 (emphasis added).

The phosphate moiety may be added by including “an organic, anionic, phosphate ester surfactant” to the binder composition. “The surfactant suitably is a salt or free acid of an anionic organic phosphate ester.” *See, Id.* at p. 6, lines 21-24. According to embodiments of the invention, “the surfactant is employed in an amount sufficient to improve the balance of tear strength and tensile strength of a bonded nonwoven glass mat prepared using the surfactant, as compared to the balance of tear strength and tensile strength of a bonded nonwoven prepared without using a surfactant.” *See, Id.* at p. 7, lines 1-6.

Binder compositions may include “a urea formaldehyde resin and 0.5-15% of an emulsion polymer, based on the dry weight of the urea formaldehyde resin and the emulsion polymer, and 0.5-15%, based on the dry weight of the emulsion polymer solids, of a salt or free acid of an anionic organic phosphate ester surfactant.” *See, Specification* at p. 3, lines 5-11.

ISSUES

1. Whether Claims 18-19 are anticipated under 35 U.S.C. § 102(b) by Drews et al. (U.S. Patent No. 5,334,648).
2. Whether Claims 18-19 are obvious under 35 U.S.C. § 103(a) in light of Drews et al. (U.S. Patent No. 5,334,648).
3. Whether Claim 20 is obvious under 35 U.S.C. § 103(a) in light of Drews et al. (U.S. Patent No. 5,334,648).

GROUPING OF CLAIMS

The appealed claims are Claims 18-20. The following is the grouping of the claims for this Appeal:

- (a) Claims 18 and 19 stand and fall together; and

(b) Claim 20 stands and falls alone.

ARGUMENT

Claims 18-19 are not anticipated by Drews et al. because Drews et al. fails to expressly or inherently describe each and every element of Claims 18 and 19. Drews et al. also fails to make obvious Claims 18 and 19 because Drews et al. fails to teach or suggest all of the recitations of those claims. Furthermore, Claim 20 is not obvious because Drews et al. fails to teach or suggest all the recitations of that claim. For at least the reasons stated herein, Claims 18-20 are allowable over the 35 U.S.C. §§ 102(b) and 103(a) rejections.

1. 35 U.S.C. § 102(b) Rejection based on Drews et al.

Each of the outstanding rejections are based solely upon Drews et al. The invention of Drews et al. “generally relates to a copolymer that is useful as a nonwoven binder particularly in moldable applications.” *See, Drews et al.* at col. 6, lines 64-66. More particularly, Drews et al. proposes a nonwoven glass mat binder for use in forming a roofing substrate formed from a blend of urea formaldehyde resin and a copolymer in a weight ratio of about 9:1, respectively. *See, Id.* at Claim 1. Glass mats formed from the binder suggested by Drews et al. “were formed by mixing the two liquids, i.e. the polymer and the formaldehyde together in a conventional manner” to form the binder, followed by the application of the binder to a nonwoven mat by saturation. *See, Id.* at col. 5, line 64 to col. 6, line 42. No other components for the binder compositions of Drews et al. are discussed.

The copolymers of Drews et al. “are made from vinyl chloride monomer, softening monomers, and functional monomers” and are the subject of the Drews et al. invention. *See, Id.* at col. 2, lines 1-3. The formation of the copolymers may include emulsion polymerization wherein various surfactants or nonionic surface active compounds may be used to form the desired copolymer for use in the binder composition of Drews et al. *See, Drews et al.* at cols. 3-4. Examples of various latex compositions produced for comparison with the inventive polymer

of Drews et al. are shown in Table I, and include compositions A, B, C, and D. Drews et al. distinguishes its inventive polymer from these latex compositions in Table II. Although Latex compositions B and C include linear alkyl phosphate ester ethoxylate, none of those compositions are used to form the Resins discussed in Tables II and IV or the inventive polymers described by Drews et al. In fact, latex compositions B and C exhibit physical properties such as tensile strength and tear strength that are inferior to those of typical acrylic, typical SBR and the inventive polymer of Drews et al., as illustrated by the data in Table II.

(a) Claim 18 is not anticipated by Drews et al.

Drews et al. fails to anticipate Claims 18 and 19. Under 35 U.S.C. § 102, “a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” M.P.E.P. § 2131 (quoting *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987)). Drews et al. fails to describe a binder composition as recited in Claims 18 and 19 and therefore fails to anticipate those claims.

Claim 18 recites, in part, a binder composition comprising “0.5-15% by weight...of a salt or free acid of an anionic organic phosphate ester surfactant.” Contrary to the Examiner’s position, Drews et al. does not propose a binder composition that includes a salt or free acid of an anionic organic phosphate ester surfactant. Drews et al. expressly states that its invention involves a mixture of two liquids, the polymer and the formaldehyde. *See, Drews et al.* at col. 5, lines 64-66. A surfactant as recited in Claim 18 is not proposed by Drews et al., therefore, Claim 18 is not anticipated.

Claim 18 was rejected in the First Action based upon the allegation that “Drews et al. shows a mixture of urea formaldehyde resin and polymer latex emulsion polymerized using a polyethyleneoxyphosphate ester surfactant.” *See, First Action* at p. 2, ¶1. However, nowhere in Drews et al. is a mixture of urea formaldehyde resin, a polymer latex, and a polyethyleneoxyphosphate ester surfactant mentioned. At most, Drews et al. proposes that a

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latex composition may be made having a linear alkyl phosphate ester ethoxylate. *See, Drews et al.* at Table I. The two latex compositions, B and C, shown in Table I, however, are not latex compositions used in the invention of Drews et al. Instead they are latex compositions that are used for a physical property comparison to the inventive polymer as shown in Table II. Further, the resin mixtures of Drews et al. shown in Tables III and IV do not include salts or free acids of an anionic organic phosphate ester surfactant as recited in Claim 18. The failure of Drews et al. to expressly or inherently describe a binder composition as recited in Claim 18 precludes the anticipation rejection of Claim 18. *See, Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

In the Final Action, the Examiner reiterates the argument that the claimed compositions do not define over the binder of Drews et al. “who discloses the use of a phosphate surfactant.” *See, Final Action* at p. 2, ¶4. However, the disclosure of the use of a phosphate surfactant alone is not enough to support an anticipation rejection. An anticipation rejection may only be supported if each and every element of a claim as set forth in the claim is found. *See, Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Besides Table I, Drews et al. only proposes the use of phosphates when discussing surfactants that may be used during an emulsion polymerization to produce a copolymer for the binder composition of Drews et al. Specifically, Drews et al. states that “various alkyl, aryl, or aralkyl type phosphates may also be used” as a surfactant. *See, Drews et al.* at col. 4, lines 26-27. The discussion of surfactant use does not apply to use with the binder composition, but rather use in the emulsion polymerization to form one component of Drews et al.’s binder composition. Thus, Drews et al. does not propose the use of a phosphate surfactant with a urea formaldehyde resin and an emulsion polymer as recited by Claim 18. The failure of Drews et al. to describe a binder composition with the recited anionic organic phosphate ester surfactant precludes the anticipation rejection. *See, Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

(b) Claim 19 is not anticipated by Drews et al.

Claims 19 stands and falls with Claim 18 because Claim 19 recites a binder composition having a surfactant as in Claim 18. The failure of Drews et al. to propose a binder composition that includes a urea formaldehyde resin, an emulsion polymer or latex, and a surfactant precludes an anticipation rejection.

Claim 19 recites “The binder of Claim 18 wherein the amount of latex is from 3 to 12 percent, and the amount of surfactant is from 0.75 to 10 weight percent.” The binder composition of Drews et al. includes two liquids: a urea formaldehyde and a polymer. *See, Drews et al.* at col. 5, lines 64-66. A binder composition including a surfactant is not proposed by Drews et al. Thus, Drews et al. fails to disclose each and every recitation of Claim 19, which precludes an anticipation rejection. *See, Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

2. 35 U.S.C. § 103(a) Rejections based on Drews et al.

Drews et al. does not support a *prima facie* obviousness rejection of Claims 18-20. In particular, Drews et al. fails to satisfy at least one of the requirements necessary to maintain a *prima facie* obviousness rejection.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure.

See, M.P.E.P. §2142, citing In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991)(emphasis added).

(a) Claim 18 is not obvious in light of Drews et al.

Independent Claim 18 recites a binder composition comprising “a urea formaldehyde resin...an emulsion polymer...a salt or free acid of an anionic organic phosphate ester surfactant.” Drews et al. does not propose such a composition. Although Drews et al. proposes a binder composition comprising urea formaldehyde and an emulsion polymer, Drews et al. never discusses the inclusion of a surfactant in its binder composition, let alone a salt or free acid of an anionic organic phosphate ester surfactant. Drews et al.’s failure to teach or suggest the use of a surfactant with a binder composition as recited in Claim 18 precludes a *prima facie* obviousness rejection. *See, In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Furthermore, the rejection of Claim 18 under 35 U.S.C. § 103(a) relies, in part, on the allegation in the First Action that “Drews et al. shows a mixture of urea formaldehyde resin and polymer latex emulsion polymerized using a polyethoxylated ester surfactant.” Although the polymer latex emulsion may be polymerized using a surfactant, Drews et al. does not teach or suggest a binding composition comprising a surfactant. In addition, Drews et al. does not teach the use of a latex composition comprising linear alkyl phosphate ester ethoxylate in its binder compositions. The two latex compositions of Table I that include linear alkyl phosphate ester ethoxylate demonstrate undesirable physical properties according to the data in Table II and are not used to form the binder compositions of Drews et al. One of skill in the art would interpret the data in Table II to indicate that a latex composition including a linear alkyl phosphate ester ethoxylate has a tear strength and tensile strength that is worse than latex without the linear alkyl phosphate ester ethoxylate. Based on the data in Tables I and II and the teachings of Drews et al., a person of skill in the art would conclude that latex compositions B and C of Table I would not be desirable for producing binder compositions because the polymer of Drews et al. “shows unexpectedly better tear properties and blend stability” than the B and C latex compositions. *See, Drews et al.* at col. 9, lines 37-39. Thus, Drews et al. teaches away from using a latex emulsion comprising linear alkyl phosphate ester ethoxylate in binder compositions.

For at least the foregoing reasons, Claim 18 is not obvious under 35 U.S.C. § 103(a) in light of Drews et al.

(b) Claim 19 is not obvious in light of Drews et al.

Claim 19 depends from Claim 18 and stands and falls with Claim 18. As a dependent claim, it is allowable over the 35 U.S.C. § 103(a) obviousness rejection because the independent claims from which it depends is nonobvious. *See, In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988)(stating that if an independent claim is nonobvious under 35 U.S.C. § 103 then any claim depending therefrom is nonobvious); *see also*, M.P.E.P. § 2143.03.

In addition, Claim 19 is also allowable because it recites a binder compositions wherein “the amount of surfactant is from 0.75 to 10 weight percent.” Drews et al. does not teach or suggest a binder composition comprising a surfactant let alone a surfactant containing binder composition where the amount of surfactant is from 0.75 to 10 weight percent. This lack of teaching precludes a *prima facie* obviousness rejection. *See, In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

(c) Claim 20 is not obvious in light of Drews et al.

Claim 20 depends from Claim 18 but stands and falls alone. Claim 20 recites a binder composition “wherein the surfactant has a polyethoxylated chain of from 3 to 15 units.” Drews et al. does not teach or suggest a binder composition comprising a surfactant as previously argued. Furthermore, Drews et al. never proposes a surfactant having a polyethoxylated chain of from 3 to 15 units. The failure of Drews et al. to teach or suggest the use of the recited surfactant precludes a *prima facie* obviousness rejection of Claim 20. *See, In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Furthermore, Claim 20 is allowable as a dependent claim of Claim 18 because dependent claims of nonobvious independent claims are also nonobvious. *See, In re Fine*, 837 F.2d 1071, 5

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U.S.P.Q.2d 1596 (Fed. Cir. 1988)(stating that if an independent claim is nonobvious under 35 U.S.C. § 103 then any claim depending therefrom is nonobvious); *see also*, M.P.E.P. § 2143.03.

CONCLUSION

On the entire record and in view of the cited reference, Appellant submits that Claims 18-20 are not anticipated and are nonobvious. Accordingly, it is respectfully requested that the Examiner's conclusions be reversed, and that this case be passed to issuance.

Respectfully submitted,

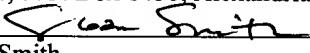


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CLAIMS APPENDIX

1 – 13. (Cancelled)

14. (Original) A binder composition comprising: (a) a urea formaldehyde resin; (b) 0.5-15% by weight of an emulsion polymer, based on the dry weight of the urea formaldehyde resin and the emulsion polymer, the emulsion polymer containing phosphorus in its polymer molecule as 0.1 to 10% by weight of the polymerized residue of an anionic phosphate group-containing monomer, or from 0.1 to 2 weight percent of the polymerized residue of a perphosphate initiator, or a combination of these, based on the solids of the emulsion polymer; and (c) optionally 0.5-15% by weight, based on the dry weight of the emulsion polymer solids, of a salt or free acid of an organic phosphate ester surfactant.

15. (Original) The binder of Claim 14 wherein the amount of phosphate monomer residue is from 0.5 to 7.5 weight percent of the emulsion polymer.

16. (Original) The binder of Claim 14 wherein the amount of perphosphate initiator residue is from 0.5 to 1 weight percent of the emulsion polymer.

17. (Original) The binder of Claim 15 wherein the latex is a carboxylated styrene butadiene latex.

18. (Original) A binder composition comprising: a urea formaldehyde resin and 0.5-15% by weight of an emulsion polymer, based on the dry weight of the urea formaldehyde resin and the emulsion polymer, and 0.5-15% by weight, based on the dry weight of the emulsion polymer solids, of a salt or free acid of an anionic organic phosphate ester surfactant.

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19. (Original) The binder of Claim 18 wherein the amount of latex is from 3 to 12 percent, and the amount of surfactant is from 0.75 to 10 weight percent.

20. (Original) The binder of Claim 19 wherein the surfactant has a polyethylenoxy chain of from 3 to 15 units.